

What is claimed is:

1. A compressor, which is cooled by cooling medium, comprising:
a compression chamber in which gas is compressed and then discharged

5 therefrom;

a first cooling chamber, in which the cooling medium flows, provided so
as to adjoin the compression chamber for cooling the gas in the compression
chamber; and

a second cooling chamber adjoining the first cooling chamber, the second
10 cooling chamber having a gas passage in which the discharged gas flows and a
medium passage in which the cooling medium flows, the medium passage being
arranged so as to restrain transmission of heat of the discharged gas in the gas
passage to the cooling medium in the first cooling chamber.

15 2. The compressor according to claim 1, wherein the cooling medium is
flowed from the first cooling chamber to the medium passage.

3. The compressor according to claim 2, wherein the medium passage is
arranged in such a manner that the gas passage does not adjoin the first cooling
20 chamber.

4. The compressor according to claim 2, wherein the medium passage is

arranged in such a manner that the gas passage partially adjoins the first cooling chamber.

5. The compressor according to claim 2, further comprising an electric
5 motor arranged in the compressor and a motor cooling member that covers the electric motor for cooling the electric motor, power for driving the compressor thereby to compress the gas in the compression chamber being supplied by the electric motor provided in the compressor, the cooling medium, which has flowed through the motor cooling member, being flowed into the first cooling chamber
10 and the medium passage.

6. The compressor according to claim 5, wherein the motor cooling member is a water jacket.

15 7. The compressor according to claim 2, wherein the compressor compresses gas which is supplied to a fuel cell.

8. The compressor according to claim 2, wherein the medium passage includes a plurality of branched tubes through which the cooling medium flows,
20 the gas passage being provided by space outside the tubes in the second cooling chamber, a fin being arranged in the gas passage.

9. The compressor according to claim 8, wherein each tube is flat in cross-section.

10. The compressor according to claim 8, wherein each tube is cylindrical in cross-section.

11. The compressor according to claim 8, wherein the tubes are spaced from the first cooling chamber by a predetermined distance.

12. The compressor according to claim 2, wherein the gas is one of air and hydrogen.

13. The compressor according to claim 1, wherein the cooling medium is flowed into the first cooling chamber and the medium passage so as to be divided into two flows.

14. The compressor according to claim 13, wherein the medium passage is arranged in such a manner that the gas passage does not adjoin the first cooling chamber.

15. The compressor according to claim 13, wherein the medium passage is arranged in such a manner that the gas passage partially adjoins the first cooling

chamber.

16. The compressor according to claim 13, further comprising an electric motor arranged in the compressor and a motor cooling member that covers the electric motor for cooling the electric motor, power for driving the compressor thereby to compress the gas in the compression chamber being supplied by the electric motor provided in the compressor, the cooling medium, which has flowed through the motor cooling member, being flowed into the first cooling chamber and the medium passage.

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17. The compressor according to claim 16, wherein the motor cooling member is a water jacket.

18. The compressor according to claim 13, wherein the compressor compresses gas which is supplied to a fuel cell.

19. The compressor according to claim 13, wherein the medium passage includes a plurality of branched tubes through which the cooling medium flows, the gas passage being provided by space outside the tubes in the second cooling chamber, a fin being arranged in the gas passage.

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20. The compressor according to claim 19, wherein each tube is flat in

cross-section.

21. The compressor according to claim 19, wherein each tube is cylindrical in cross-section.

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22. The compressor according to claim 19, wherein the tubes are spaced from the first cooling chamber by a predetermined distance.

23. The compressor according to claim 13, wherein the gas is one of air and
10 hydrogen.